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Harm Reduction at the Crossroads The Case of E-Cigarettes

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Abstract

The recent popularity of electronic (e)-cigarettes and their rapid uptake by youth has ignited the debate about their role as a harm-reduction strategy. Harm reduction in the context of tobacco control contends that in societies that have achieved considerable success in curbing smoking, leaving the remaining hard-to-quit smokers with an abstinence-only option is unfair, especially when less-harmful choices are available. On one side of the debate are those who call for caution in endorsing such products until critical pieces of evidence about their safety and potential become available, whereas the other side argues that waiting until all questions about e-cigarettes are answered is dogma driven. In this piece, I try to discuss the unresolvable contention between harm-reduction goals of offering safer options to smokers, and those of e-cigarette makers of being commercially viable and profitable.

New data from the National Youth Tobacco Survey (NYTS) show that the number of electronic (e)-cigarette experimenters among high school students in the U.S. more than doubled (from 4.7% to 10%) between 2011 and 2012[1]. Figures of e-cigarette sales from the U.S. and Europe paint a similar picture[2] and suggest that they could even surpass conventional cigarettes within a decade or so. Such dramatic developments, never seen with medicinal nicotine, have ignited the debate about e-cigarettes as a harm-reduction strategy and the broader implications of their spread. Harm reduction in the context of tobacco control contends that in societies that have achieved substantial progress in curbing smoking, leaving the remaining unwilling or hard-to-quit smokers with an abstinence-only option is unfair, especially when less-harmful choices are available.[2–6] Traditionally, these options involved non-combustible tobacco/nicotine products such as oral tobacco, and most recently e-cigarettes.[4] On one side of the debate are those who call for caution in endorsing such products until critical pieces of evidence about their safety and potential become available, whereas the other side argues that the merit of e-cigarettes to tobacco control and public health is obvious.[2–9] For the later camp, with e-cigarettes we finally have a product that looks like cigarettes, works like cigarettes, is popular among smokers, but poses less

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harm than conventional cigarettes. What more would we need to deliver the final blow to combustible cigarettes and their industry? Indeed, it looks from what we already know that e-cigarettes are not as harmful to individuals as combustible tobacco,[8,9] and as a cessation tool, available evidence gives them marginal advantage over medicinal nicotine.[10,11] Evidence also suggests that dual use is the more likely scenario among e-cigarette consumers, yet their long-term potential to reduce cigarette consumption and subsequent tobacco-related morbidity and mortality is still unknown.[11] Though limited, such evidence should put this whole debate to rest at least for now, especially when the more deadly product—conventional cigarettes—is legally marketed and sold. I argue in this piece that this debate is far from settled, that e-cigarettes do not qualify as a harm-reduction product, and, if anything, they can lead to one of the major blunders in public health!

First, we need to make a distinction between harm reduction at the individual and population levels. On the face of it, it seems that what is good for the individual must be good for the collective society. The classical analogy provided in support of adopting harm-reduction principles for tobacco control is needle exchange programs for the prevention of infectious disease among drug users. Clearly, such programs provide a clear rationale for risk reduction in individuals and the society that is not contingent on drug abstinence.[2,4] This model, however, is off the mark for e-cigarettes for three main reasons. First, unlike e-cigarettes, clean needles have a negligible role in substance use initiation, maintenance, or elimination. Second, clean needles for harm reduction have no vested interests behind them (i.e., no profit-based advertisement, lobbying, or spending millions of dollars to thwart any attempt at product regulation). Finally, injection drug use is a discrete and non–self-promoting practice, whereas smoking is a visible, self-promoting behavior.[12,13] This last factor makes the potential for spillover beyond the intended target group for the harm-reduction strategy (unable-to-quit smokers) very likely. As I discuss below, these distinctions have substantial implications on the way we should approach e-cigarettes and their place as a harm-reduction strategy.

For an individual harm-reduction strategy to be justified, its “unintended” consequences to the society should be minimal.[3–5] If we look at e-cigarettes' potential to spread nicotine addiction, one needs to ask first “unintended” for whom and by who? The manufacture and marketing of a highly addictive product has one “primary intention:” to hook as many people as possible on it.[14] We need to remember that e-cigarettes' promotion is and will continue to be driven by their manufacturers' business model, not public health or harm-reduction agendas, although it will perhaps use those selectively to attract more customers and boost profits. Moreover, the harm-reduction model, based on e-cigarettes' potential to replace, reduce, or help to quit combustible cigarettes, is incompatible with a sustainable business model for e-cigarettes without continuous influx of new addicts. A successful tobacco replacement/quitting aid will lead to its own commercial demise when all current smokers quit or die.[15] This certainly is not the business plan of e-cigarette manufacturers. We already know from the recent U.S. NYTS that 20.3% of middle school and 7.2% of high school students who had ever tried e-cigarettes have never used conventional cigarettes beforehand.[1] These figures mean that thousands of tobacco-naïve youngsters can potentially become hooked on nicotine through e-cigarettes.

To calm the concerns about e-cigarettes' potential to hook new customers on nicotine, harm-reduction enthusiasts advance two main arguments. The first is that current data do not seem to support such concerns, and the second is that this risk can be further minimized through proper regulations.[2–4] Indeed, current data in youth show that only a minority of new e-cigarette users are tobacco/nicotine naïve.[1] However, this group is likely to grow cumulatively, as it can take only few exposures to nicotine to get an adolescent hooked for life.[17] It will also grow cumulatively owing to the salience of peer influence in this age group[13] and the continued promotion of e-cigarettes as a harmless, practical, and “cool” alternative to conventional cigarettes.[13,17–19] In fact, if we look at e-cigarette product design and marketing, with intensive use of colors and flavors, and with promotion through celebrities, the Internet, and social media,[18,19] it is not hard to see what sector of the society the industry is targeting. These are for sure not the “hard-to-quit smokers” repeatedly invoked in the harm-reduction debate.[2–6] The renormalization of the smoking act through e-cigarettes, moreover, will likely improve the acceptability of the smoker's image in the society in general—a major setback on one of the main factors that helped to reduce smoking worldwide.[18]

The second argument focuses on the role of regulations in minimizing the potential uptake of e-cigarettes by nonsmokers. The European Union parliament has recently approved tighter regulations for e-cigarettes, and some countries, such as the United Kingdom, are going the route of licensing some e-cigarettes as medicine.[20,21] These are certainly steps in the right direction, but harm-reduction proponents have already cautioned against broad regulation of e-cigarettes that will render them less competitive with conventional ones.[22–25] Instead, they propose a dual policy approach: strict regulations for youth (e.g., limit access and advertisement), but more lenient ones for adults (e.g., favorable taxation, regulation as a dietary product, wider availability than medicinal nicotine).[3,4,22–25] Indeed, part of the commercial success of e-cigarettes can be attributed to the fact that they are cheaper, face fewer restrictions, and remain a novelty. It is not surprising, therefore, to see some early evidence of increased uptake of e-cigarettes at the expense of conventional ones.[26] The leap of faith is to assume that these figures follow a causal path that will lead to reduction in smoking-related morbidity and mortality in society,[11,24] or that the suggested policy dualism will work in a society where youth and adults influence each other's perceptions and behavior. What would be the expected success of youth regulations for a “cool and safe” product, where even its deadly form, the conventional cigarette, could evade many of those restrictions through portrayal of smoking in movies, brand stretching, and the use of the Internet and social media,[27] or how lenient regulations for adults will surgically target only current smokers? For example, former smokers, many of whom continue to linger on the verge of relapse for years, will find it perhaps very hard to resist the e-cigarettes' promise of the same experience but with far less harm. With major tobacco companies such as British American Tobacco and Philip Morris buying into the e-cigarette market,[28] let us remind ourselves that this is the same industry that claimed for decades that their marketing activities are not aimed at or lead to initiation, but rather brand switching.[27]

The bottom line is that we need clear evidence of more people quitting or replacing tobacco smoking with e-cigarettes than otherwise, and without causing significant nicotine uptake in society, before we can consider e-cigarettes as a viable harm-reduction strategy. Russell's[29]

famous quote “people smoke for nicotine but they die from the tar,” often used to support harm-reduction through non-combustible tobacco products, may conceal the fact that nicotine causes a mundane addiction with lifelong psychosocial, economic, and health consequences; or in the words of industry insider, Dr. Helmut Wakeman, during a presentation to Philip Morris Board of Directors in 1969, “they'll take cigarettes ahead of food if starved of nicotine.”[30] Introducing this disease to millions, who otherwise would not have smoked tobacco, is not a sensible harm-reduction strategy. So although harm-reduction advocates indulge in the comparison between conventional and e-cigarettes for individuals,[8,9] they miss perhaps the more fundamental one between nicotine addiction and no addiction for society. Conceivably, we are looking at a coming picture of broad-based nicotine addiction, with a dominant industry at the helm providing several products/options to suit different sectors of that base.

The potential of e-cigarettes as a harm-reduction product needs to be based on clear evidence rather than benchmarked on the worst-case scenario—because cigarettes are sold freely, anything less harmful should be given a full pass.[25] Currently, the e-cigarettes/harm-reduction model represents an unlawful marriage between two contentious goals to offer safer options to those who cannot quit, while being commercially viable by getting increasingly more people hooked on nicotine. The ability of regulations to resolve this fundamental contention is limited because they require irreconcilable sets of policies. We are dealing in e-cigarettes with a product that is marketed and appeals to youth, highly addictive, reminiscent of a very popular one, and finally is driven by an industry with a profit-based model rather than public health's harm-reduction one.

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References

1. CDC. Notes from the field: electronic cigarette use among middle and high school students-U.S., 2011–2012. MMWR. 2013; 62(35):729–30. [PubMed: 24005229]
2. Fairchild AL, Bayer R, Colgrove J. The renormalization of smoking? E-Cigarettes and the tobacco “endgame.”. N Engl J Med. 2014; 370(4):293–5. [PubMed: 24350902]
3. Abrams DB. Promise and peril of e-cigarettes, can disruptive technology make cigarettes obsolete? JAMA. 2014; 311(2):135–6. [PubMed: 24399548]
4. Fagerström KO, Bridgman K. Tobacco harm reduction: the need for new products that can compete with cigarettes. Addict Behav. 2014; 39(3):507–11. [PubMed: 24290207]
5. Royal College of Physicians. A report by the Tobacco Advisory Group of the Royal College of Physicians. Royal College of Physicians; London: 2007. Harm reduction in nicotine addiction: helping people who can't quit.
6. Sweanor D, Alcabes P, Drucker E. Tobacco harm reduction: how rational public policy could transform a pandemic. Int J Drug Policy. 2007; 18(2):70–4. [PubMed: 17689347]
7. Chapman S, Wakefield MA. Large-scale unassisted smoking cessation over 50 years: lessons from history for endgame planning in tobacco control. Tob Control. 2013; 22(1S):Si33–Si35.
8. Cahn Z, Siegel M. Electronic cigarettes as a harm reduction strategy for tobacco control: a step forward or a repeat of past mistakes? J Public Health Policy. 2011; 32(1):16–31. [PubMed: 21150942]

9. Wagener TL, Siegel M, Borrelli B. Electronic cigarettes: achieving a balanced perspective. Addiction. 2012; 107(9):1545–8. [PubMed: 22471757]
10. Bullen C, Howe C, Laugesen M, et al. Electronic cigarettes for smoking cessation: a randomised controlled trial. Lancet. 2013; 382(9905):1629–37. [PubMed: 24029165]
11. Chapman, S. Will Vapers Really “Quit and (Not) Die?”. blogs.bmj.com/bmj/2014/03/17/simon-chapman-will-vapers-really-quit-and-not-die/
12. Charlesworth A, Glantz SA. Smoking in the movies increases adolescent smoking: a review. Pediatrics. 2005; 116(6):1516–28. [PubMed: 16322180]
13. Kobus K. Peers and adolescent smoking. Addiction. 2003; 98(1S):S37–S55.
14. Maziak W. Unintended for whom and by who? JAMA. 2014 in press.
15. Taleb ZB, Maziak W. Harm reduction and e-cigarettes: not evidence-based. Lancet Oncol. 2014; 15(3):e104. [PubMed: 24599927]
16. DiFranza JR, Savageau JA, Fletcher K, et al. Symptoms of tobacco dependence after brief intermittent use: the Development and Assessment of Nicotine Dependence in Youth-2 study. Arch Pediatr Adolesc Med. 2007; 161(7):704–10. [PubMed: 17606835]
17. Agaku IT, Ayo-Yusuf OA. The effect of exposure to pro-tobacco advertising on experimentation with emerging tobacco products among U.S. adolescents. Health Educ Behav. 2013; 41(3):275–80. [PubMed: 24347143]
18. McKee M. E-cigarettes and the marketing push that surprised everyone. BMJ. 2013; 347:f5780. [PubMed: 24070876]
19. Grana RA, Glantz SA, Ling PM. Electronic nicotine delivery systems in the hands of Hollywood. Tob Control. 2011; 20(6):425–6. [PubMed: 21659450]
20. Tanday S. European Parliament votes to tighten tobacco regulations. Lancet Respir Med. 2013; 1(9):678. [PubMed: 24429266]
21. Meikle, J. E-cigarettes Could Become `Medicines' Available on NHS. theguardian.com/society/2014/feb/02/e-cigarettes-medicines-nhs
22. Hajek P, Foulds J, Le Houezec J, Sweanor D, Yach D. Should e-cigarettes be regulated as a medicinal device? Lancet Respir Med. 2013; 1(6):429–31. [PubMed: 24429230]
23. Polosa R, Caponnetto P. Regulation of e-cigarettes: the users' perspective. Lancet Respir Med. 2013; 1:e26. [PubMed: 24461619]
24. Hajek P. Electronic cigarettes for smoking cessation. Lancet. 2013; 382(9905):1614–6. [PubMed: 24029168]
25. Etter JF. Should electronic cigarettes be as freely available as tobacco? Yes. BMJ. 2013; 346:f3845. [PubMed: 23771039]
26. Adelman, DJ.; Grainger, M.; Ayala, V.; Paxton, K. Tobacco: New Years' resolutions + e-cigs = weaker volumes?. Morgan Stanley Research North America; New York: 2013.
27. National Center for Chronic Disease Prevention and Health Promotion (U.S.) Office on Smoking and Health. Preventing tobacco use among youth and young adults: a report of the Surgeon General. CDC; Atlanta GA: 2012.
28. Cavale, S.; Kumar, DK. Marlboro Maker Philip Morris to Enter e-cigarette business. reuters.com/assets/print?aid=USBRE9AJ0YH20131120
29. USDHHS. A report of the Surgeon General. USDHHS, Public Health Services, Office on Smoking and Health; Washington DC: The health consequences of smoking: nicotine addiction; p. 88-8406.USDHHS Publication No. 1988
30. Legacy Tobacco Documents Library. legacy.library.ucsf.edu/tid/yfl46e00